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(54) **MINIMIZING  
SPATIAL-DISPERSION-INDUCED  
BIREFRINGENCE**

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(58) **Field of Classification Search** ..... 423/464;  
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See application file for complete search history.

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(57) **ABSTRACT**

A composition formed from Group II fluorides in which the  
composition has little or no intrinsic birefringence at a  
selected wavelength. The composition is a mixed solid  
solution of CaF<sub>2</sub> with a second crystal of SrF<sub>2</sub> or BaF<sub>2</sub>. The  
resulting composition is in the form of Ca<sub>1-x</sub>Sr<sub>x</sub>F<sub>2</sub> or Ca<sub>1-x</sub>  
Ba<sub>x</sub>F<sub>2</sub>, or a combination of SrF<sub>2</sub> and BaF<sub>2</sub>, in the form of  
Ca<sub>1-x-y</sub>Sr<sub>x</sub>Ba<sub>y</sub>F<sub>2</sub>. The specific form of the composition that  
effectively nulls out the intrinsic birefringence at a selected  
wavelength within the UV range is determined in one  
preferred method from the magnitudes of the intrinsic bire-  
fringences of the components, CaF<sub>2</sub>, SrF<sub>2</sub>, and BaF<sub>2</sub>.

**17 Claims, 3 Drawing Sheets**

